

François VOLDOIRE, 61 years old, is Senior Research Engineer at Électricité de France, Research and Development Division (EDF R&D). He is also a member of IMSIA (UMR 9219 EDF-CNRS-CEA-ENSTA ParisTech ; <http://www.imsia.cnrs.fr/>), a mixed industrial and government funded research unit. Moreover, he is member of SEISM Institute, the foundation of which he participated, <http://www.institut-seism.fr/en/>. He graduated with a Diploma Engineer Degree in Civil Engineering at the Ecole Nationale des Ponts et Chaussées (ENPC 1982) and is also Part-time associate professor for 31 years at ENPC (Structural Mechanics and Seismic Structural Analysis and Modelling). His research and development activities are related to Structural and thermo-mechanics, Homogenisation techniques, Constitutive relations, Limit analysis, Thermo-hydro-mechanical coupling for porous materials, Non-linear dynamics and vibrations of structures, soil-structure and fluid-structure coupling for seismic engineering. He participates in development of non-linear structural analysis methods and simulation solutions (*Code_Aster*, *Salomé_Méca* <https://www.code-aster.org...>). His expertise field concerns mechanical engineering and civil works of nuclear power plants, hydropower dams, earthquake engineering... He supervised seven PhD students and participated to more than ten PhD defence committees. He participated also to several conference scientific committees, as chairman, in the field (TINCE, AFPS colloquia, ICONÉ...). He is member of Association Française de Génie Parasismique and EUROMECH. He co-authored with Y.Bamberger a textbook: *Mécanique des structures : initiation, approfondissements, applications*, in French, Presses des Ponts Publishers, 2008, ISBN: 978-2-85978-437-9, 688 p. See: https://bibliotheque.enpc.fr/exl-php/cadcgp.php?CMD=CHERCHE&MODELE=vues/enpc_recherche_avancee/tpl-r.html&WHERE_IS_DOC_REF_LIT=108871&&TABLE=uni_doc.

And he authored chapters in the following books: *Limit analysis by the Norton-Hoff-Friaâ regularising method. Numerical Methods for Limit and Shakedown Analysis. Deterministic and Probabilistic Problems*. Edited by M.Heitzer and M.Staat. NIC Series, Volume 15, ISBN: 3-00-010001-6, John von Neumann Institute for Computing Publishers, 2003. *Modélisation des ouvrages de génie civil en béton armé sous sollicitations sismiques*. F.Voldoire, D.Markovic, S.Moulin, L.Davenne, S.Ghavamian, N.Mezher. In APS-AFPS 2008 December Workshop Proceedings on Seismic vulnerability of existing building stock : concrete, modelling, experiments, ISBN 978-2-9515025-4-3, pages 9-29, mars 2016. He authored or co-authored more than 35 conference and 20 peer-reviewed journal papers.

RESUME

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Professional Experiences & Educational Background

March 2007 – present: Senior Research Engineer, EDF, France. (Committee held on 13th of March 2007).

2012-pres : Part-time Professor at École Nationale des Ponts et Chaussées and Sorbonne Université, « Seismic Structural Analysis and Modelling ».

2009-2012 : Part-time Assistant Professor at École Nationale des Ponts et Chaussées, “Structural Mechanics and Strength of Materials”.

2002-2008 : project manager: “Structures and equipment seismic assessment – methods and tools”, at EDF/Research & Development Division.

1990-2008 : Part-time lecturer (Maître de Conférences), École Nationale des Ponts et Chaussées, « Structural Mechanics and Strength of Materials ».

1995-2000: head of “Theoretical and applied mechanics” research team, EDF/R&D Division.

2000-2004: head of “Structural dynamics modelling” research team, EDF/R&D Division.

1984-1994: Research engineer (see scientific fields above), EDF/R&D Division.

1982-1984: professor, Rational Mechanics, ENIT, Tunis, Tunisia.

Diploma Engineer Degree in Civil Engineering at École Nationale des Ponts et Chaussées, Paris, June 1982.

Publications in peer-reviewed journal papers (selection)

- [1] Stress identification in steam generator tubes from profile measurements, S.Andrieux, F.Voldoire. Nuclear Eng. & Design, 158 (1995), Pages 417-427.
- [2] Homogenised constitutive model coupling damage and debonding for reinforced concrete structures under cyclic solicitations, Ch.Combescure, H.Dumontet, F. Voldoire (corr. author). International Journal of Solids and Structures, Volume 50, Issue 24, Pages 3861–3874, November 2013.
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- [7] Coupled S-P wave propagation in nonlinear regularized micromorphic media. I.Rapti; A. Modaresi; A.Foucault; F.Lopez-Caballero; F.Voldoire. Computers and Geotechnics, Volume 77, Pages 106–114, July 2016.
- [8] On the numerical implementation of a multi-mechanism cyclic plasticity constitutive model associated to a simplified second gradient model. A.Foucault, M.Kham, A.Modaresi, F.Voldoire. Advances in Bifurcation and Degradation in Geomaterials, Pages 201–208, 2011.
- [9] Stress resultant nonlinear constitutive model for cracked reinforced concrete panels, M. Huguet; S. Erlicher; P. Kotronis, F. Voldoire. Eng. Fracture Mech. Volume 176, Pages 375–405, 1st May 2017.
- [10] SMART 2013: lessons learnt from the International Benchmark about the seismic margin assessment of nuclear RC buildings. B.Richard; F.Voldoire; M.Fontan; J.Mazars; T.Chaudat; N.Bonfils. Engineering Structures, 161, pp. 207–222, February 2018. <https://doi.org/10.1016/j.engstruct.2018.02.023>.
- [11] Liquefaction analysis and damage evaluation of embankment-type structures. I.Rapti, F.Lopez-Caballero, A.Modaresi, A.Foucault, F.Voldoire. Acta Geotechnica, 13, February 2018. <https://doi.org/10.1007/s11440-018-0631-z>.
- [12] Toward an integrated seismic risk assessment for nuclear safety improving current French methodologies through the SINAPS@ research project. C.Berge-Thierry, F.Voldoire et al. 2016, Nuclear Eng. & Design, <https://doi.org/10.1016/j.nucengdes.2016.07.004>.
- [14] Broad-band 3-D earthquake simulation at nuclear site by an all-embracing source-to-structure approach. F.Gatti, S.Touhami, F.Lopez-Caballero, R.Paolucci, D.Clouteau, V.Alves-Fernandes, M.Kham, F.Voldoire. Soil Dyna. Earthq. Eng., 115, pp. 263-280, 09/2018. DOI: <https://doi.org/10.1016/j.soildyn.2018.08.028>
- [15] Main Achievements of the Multidisciplinary SINAPS@ Research Project: Towards an Integrated Approach to Perform Seismic Safety Analysis of Nuclear Facilities. C Berge-Thierry, F.Voldoire, F.Ragueneau, F.Lopez-Caballero and A.Le Maout. P. & A. Geo-Physics, Vol. 176, 5, 05/2019. <https://doi.org/10.1007/s00024-019-02194-4>.